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APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
09 649,084	08 28 2000	Wing Cheung Ho	016660-055	7505

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EXAMINER

EDMONDSON, LYNNE RENEE

ART UNIT	PAPER NUMBER
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1725

10

DATE MAILED: 03 19 2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/649,084

Applicant(s)

HO ET AL.

Examiner

Lynne R. Edmondson

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 10 January 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1 and 3-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawase et al. (USPN 3941985).

Kawase teaches a wedge wire bonding apparatus (comprising a bonding head, a longitudinal ultrasonic transducer (81) wherein the workpiece supporting table may be rotated or moved in an x-y direction and the bond head is moveable in x-y and vertical directions (figure 1 and col 3 line 27 – col 4 line 25). Either the tool or the workpiece may be fixed relative to the other. The transducer axis would remain fixed (locked) during the actual bonding process (col 5 lines 16-21 and col 6 lines 15-28). See also Kawase claims 1-6.

2. Claims 1-4, 6-8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshida et al. (USPN 4039114).

Yoshida teaches a wedge wire bonding apparatus comprising a bonding head, a longitudinal ultrasonic transducer (horn, 15 in figure 5) and rotatable workpiece supporting means (col 4 lines 5-33). The bond head supporting means may be fixed in

the x-y direction (movement in z direction and rotation only) with x-y movement or rotary movement of the workpiece (col 5 lines 32-60 and col 10 lines 16-36). Note that the rotation is around the z-axis, at least one of the angular positions around the z axis (between 0 and 90 degrees) would be 45 degrees (col 4 lines 19-27). An operator may observe the process (col 4 lines 52-60). As all of the parts of controllably moveable, all are capable of remaining fixed relative to one another and convention dictates that transducer axis would remain fixed during the actual bonding process. See also Yoshida claims 1 and 8-12.

3. Claims 1- 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Amorosi et al. (USPN 4619395).

Amorosi teaches a wedge wire bonding apparatus (col 2 lines 31-35 and lines 50-60) comprising a bonding head, a longitudinal ultrasonic transducer (81) wherein the workpiece supporting table may be rotated through at least 180 degrees (col 2 lines 9-22) and the bond head is moveable in the x-y direction (figure 4). The bond head supporting means may be fixed in the x-y direction (movement in z direction) with rotary movement of the workpiece supporting means (fixed in the x-y direction) or the bond head may move in the x-y direction while workpiece movement is fixed in the x-y direction (col 3 lines 1-40 and col 5 lines 36-63) or moving (translated) in the x-y direction (col 6 lines 27-33). Note that rotation is around the z axis, at least one of the angular positions around the z axis (between 0 and 180 degrees) would be 45 degrees (figure 4). The transducer axis would remain fixed during the actual bonding process

(only vertical movement, col 5 line 64 – col 6 line 2). See also Amorosi claims 1-8 and 19.

4. Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Quick et al. (USPN 5465899).

Quick teaches a wedge wire bonding apparatus comprising a bonding head, a longitudinal ultrasonic transducer (horn, 41 in figure 11) and workpiece supporting means (x-y table) wherein either the bond head or table may be rotated (col 2 lines 9-22) around a z axis (col 2 lines 63-66) or one may be fixed relative to the other. The bond head supporting means may be fixed in the x-y direction (movement in z direction and rotation only) with movement of the workpiece in the x-y direction (col 6 lines 46 - col 7 line 10 and figure 11) or may comprise means for rotary movement of the workpiece supporting means (fixed in the x-y direction) with x-y movement of the bonding tool (col 7 lines 12-45 and figure 13). Note that the stitch bond angle is 45 degrees (col 5 line 1) and the rotation is around the z axis, at least one of the angular positions around the z axis (between 0 and 360 degrees) would be 45 degrees (figure 10). An operator may observe the process from any angle since the bonding area is open (figures 11 and 13). As all of the parts of controllably moveable, all are capable of remaining fixed relative to one another (col 7 lines 8-10 and lines 42-46) and convention dictates that transducer axis would move for positioning but remain fixed during each bonding operation (col 12 line 60 – col 13 line 19). See also Quick claims 1-4, 7, 10-14 and 17.

5. Claims 1, 2 and 4-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Elles et al. (USPN 4239144).

Elles teaches a wedge wire bonder wherein the bonding tool moves through a 360 degree rotation (includes 45 degrees) (col 5 lines 18-35). Note in figure 13, bonds at a 45 degree angle. The bonding apparatus comprises a transducer having a longitudinal axis serving as a support for the bonding tool (col 6 lines 32-46). An operator can observe the process from a number of positions including a position where the transducer is pointing in the direction of the operator. Convention dictates that transducer axis would move for positioning but remain fixed during the actual bonding process (only vertical movement).

6. Claims 1-5 and 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Cheng et al. (USPN 5897048).

Cheng teaches an ultrasonic wedge wire bonder (col 1 lines 43-60) comprising a bonding tool on a support and a workpiece supporting means. The bonding tool or workpiece may be moved rotationally about a z axis (fixed in the x-y direction) with the other is moved in the x-y direction (col 2 lines 48-67, col 5 lines 10-39 and figures 3 and 4). Note that the transducer (608 in figure 6, col 7 lines 41-51) has a longitudinal axis and is mounted for rotation movement which can be positioned to form a bond at a 45 degree angle (figure 2). The transducer axis is moved into position which remains

fixed while the bondhead moves vertically to effect the bond (col 7 lines 52-65). See also figure 5 and Cheng claim 1.

Response to Arguments

7. In response to applicant's argument that the references do not teach that the bond head lies on a dividing line between the X and Y axes at all times, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

In Quick figure 12 that the transducer can be rotated into a position such that the transducer axis lies at a 45 degree angle thereby lying along a line dividing the X and Y axes. The work holder may also be rotated (col 7 lines 12-22) or may remain fixed. As all the parts are capable of movement, all may also remained fixed in the apparatus. Although the transducer is capable of movement through 45 degrees it is also capable staying along the 45 degree line at all times and conventionally the transducer would be fixed during the actual bonding process. It is noted that the instant claims are apparatus

not method claims. Therefore the 102 (b) rejection of claim 1 as anticipated by Quick stands and now includes claims 2-11.

The Elles apparatus is also capable of stopping at a 45 degree angle (dividing line) to perform bonding (figure 13) and thereby has means for supporting the bondhead such that the longitudinal axis of the transducers can lie along a line dividing the X and Y axes and conventionally the transducer would be fixed during the actual bonding process. Therefore the 102 (b) rejection of claims 1, 2 and 4-9 as anticipated by Elles stands.

The Cheng transducer (608 in figure 6, col 7 lines 41-51) has a longitudinal axis and is mounted for rotation movement and thereby has means for supporting the bondhead such that the longitudinal axis of the transducers can lie along a line dividing the X and Y axes and conventionally the transducer would be fixed during the actual bonding process. Therefore the 102 (b) rejection of claims 1, 3-5, 10 as being anticipated by Cheng stands and now includes claims 2, 8, 9 and 11.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hamanaka (JPN 10-303241 A), Razon et al. (USPN 5890643), Biggs et al. (USPN 5702049), Kulicke, Jr. et al. (USPN 4073424) and Chan et al. (USPN 4550871).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynne R. Edmondson whose telephone number is 703-306-5699. The examiner can normally be reached on M-F from 7-4, with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on 703-308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3599 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

LRE
March 14, 2002


TOM DUNN
SUPERVISORY PATENT EXAMINER
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